



August 2007

Executive Summary

Description of Event

The NOAA 2007 National Stakeholder Forum, sponsored by the Office of Program Planning and Integration (PPI), was held at the Hyatt Regency in Crystal City, Virginia, on May 23rd, 2007. This full-day event served as a venue for NOAA to share its strategic outlook with stakeholders and collect their recommendations for the agency's strategic direction and priorities. The forum was centered on four theme areas that align with NOAA's four Strategic Goals (Climate, Weather and Water, Commerce and Transportation, and Ecosystems):

- Societal demands for climate information services,
- Research and technological challenges to improving extreme weather forecasting and prediction,
- Decision support services for hazard resilient communities, commerce, and transportation, and
- Ecosystem approaches to management in an era of changing mandates and increasing pressure on ocean and coastal resources.

NOAA also provided stakeholders with opportunities to provide feedback outside of the four theme areas by soliciting their comments on the organization's recent regional collaboration efforts and other NOAA-related issues.

Participating in the forum were more than 150 of NOAA's strategic partners and key stakeholder groups. The event was hosted by Mary Glackin, then Assistant Administrator for PPI, and featured opening and closing remarks by the NOAA Administrator, retired Navy Vice Admiral Conrad C. Lautenbacher, Jr. Other key NOAA leaders, including deputy assistant secretaries, assistant and deputy assistant administrators, goal team leads and regional team leads, were available throughout the day to converse with stakeholders. In addition, exhibitors from the NOAA line offices staffed expo booths in order to educate stakeholders on their products and services.

Stakeholder Input

NOAA collected stakeholder input at the forum using a variety of means. Idea centers featuring real-time surveys sought answers to strategic questions on the four themes and regional collaboration. Panel discussions brought in subject matter experts to discuss each theme and field questions from stakeholders. Subsequent breakout sessions on each theme gave stakeholders the opportunity to provide recommendations for how NOAA can improve its existing products and services, and respond to emerging demands.

Based on input gleaned from these forum activities, NOAA has developed a better understanding of the needs and opinions of its many stakeholders. A summary of what was heard for each theme is provided in the following sections.

Climate Theme

Stakeholders that participated in the Climate breakout session represented a cross section of sectors, including private industry, non-profit groups, and other federal agencies, and provided views that reflected a broad understanding of climate issues. Their views were similar to the needs and issues raised in other NOAA Climate forums, thereby reinforcing many previously identified gaps in the NOAA Climate program.

When presented with a series of questions on demand for climate information and what NOAA should be doing to address those demands, the stakeholders overwhelmingly supported the concept of NOAA leading an effort to provide unbiased climate information to the general public and the broad suite of decision makers affected by climate change impacts.

Emerging societal demands identified by the stakeholders included the provision of long term climate observations and analysis of that information as a foundation for understanding the impacts of climate change. NOAA must try to articulate the potential value of that information to decision makers who are designing mitigation and adaptation plans. As mentioned above, stakeholders saw a clear need for national leadership and placed their confidence in NOAA to increase its leadership role as provider of unbiased climate information. The delivery of climate information through education and climate literacy efforts was seen as critical for students and the general public, as well as decision makers.

In more detailed discussions, data acquisition (observations), assimilation, distribution, and stewardship were top priorities identified by stakeholders. This included filling critical gaps in observation sources (e.g., satellites) as well as providing the infrastructure necessary for archiving data, and analysis and reanalysis of climate data. Support of research and analysis was a priority in terms of providing funding, allowing scientists to speak freely about their results, and support from leadership in the participation in climate policy and programs such as the Intergovernmental Panel on Climate Change. Stakeholders also felt strongly about the delivery of climate tools at the regional, state, and local levels, such as the design and implementation of community-based planning and research.

Overall, stakeholders identified four major themes to which they would like to see NOAA direct more attention: (1) developing and providing climate services, (2) research and information to support actions in response to the changing climate, (3) end-to-end integration providing a clear road map of information from observations to users and back again, and (4) communication via educators, communications experts, and media to ensure the accessibility, usefulness, and usability of data and science by the intended users.

Extreme Weather Theme

Extreme weather issues addressed at the NOAA Stakeholder Forum covered (1) the balance of NOAA investments in observational systems (e.g., satellite, aircraft, buoy), high performance computing, and high resolution models to deliver improved hurricane track and intensity forecasts, (2) observational systems (e.g. dual pol and phased array radars, wind profilers) and information technology to display, compute, and communicate improved severe thunderstorm forecasts, (3) significant emerging societal demands for water resource information services and what NOAA's distinct role is in responding to those demands, (4) products NOAA should focus on in support of the Next Generation Air Transportation System (NGATS), and (5) NOAA's response to new mandates at local, state, and national levels to address integrated climate-air quality management strategies.

With regard to hurricane track and intensity forecasting, stakeholders stated that the costs/benefits and risks of potential investments should determine what to invest in, and, as investments in capabilities grow, NOAA should re-align its policies / practices to maximize the benefits. Stakeholders also suggested that NOAA explore partnering and cost-sharing for capabilities and resources that generate mutual benefits, an effort that requires strong communication. Investments in (1) hi-coupled global modeling, (2) real-time 3D coverage of winds and near-surface ocean conditions for hurricane research, models, and forecasts, and (3) QuickSCAT, were mentioned as promising areas for new investment.

Stakeholders discussed NOAA's future direction for observational and information technology to display, compute, and communicate improved severe thunderstorm forecasts. Some felt that research on an optimal framework for observing, assimilating, and displaying systems must be done now. For instance, gap filling radars and/or specially phased array radar (PAR) – possibly developed as a multi-mission product with NOAA taking a leadership role in a multi-agency development effort – were discussed. Stakeholders also recommended offering plain language, GIS-based, web-pushed warnings that would be available for any location.

NOAA's role in responding to societal demands for water resource information services was discussed. Stakeholders provided several recommendations, including (1) providing GIS-compatible data feeds, (2) increasing the availability of probabilistic forecasts for decision makers, (3) expanding inundation mapping services with GIS overlay, and (4) providing drought data and forecasts for long-and short-term water resource information and projections.

Stakeholders felt that NOAA should establish itself as the single authoritative source for aviation support by developing the Next Generation Air Transportation System (Next Gen). With this capability, NOAA would be responsible for the continual evolution of an automation / human / implement mix. Stakeholders recommended that this effort involve securing resources to implement Next Gen, establishing metrics, investing in training and embracing change management within the organization. Stakeholders also recommended that Next Gen include the capability to create and maintain "4D Cube" weather information, including observation networks and assimilation.

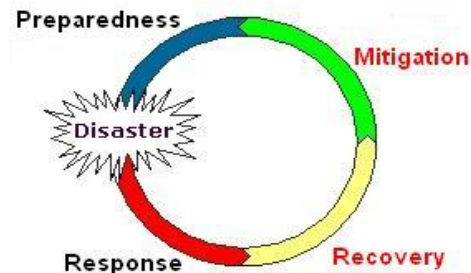
Stakeholders discussed NOAA's response to new mandates at the local, state, and national levels to address integrated climate-air quality management strategies. Some recommended that NOAA ensure A/Q research results are included in global warming discussions and

actions. Other suggestions included making A/Q data available in a standardized format using NOAA-Port to disseminate, and pursuing opportunities for space-borne observation platforms to support A/Q climate issues, including NASA's GEO-CAPE. They acknowledged that this effort would require outside participation and support and they encouraged NOAA to foster international cooperation with a focus on fine particles and initiate a public outreach education effort on A/Q and climate, including all impacts of alternative fuels.

Hazard Resilience Theme

The Stakeholder Forum was representative of comments heard in many prior workshops and assessments on NOAA's role in hazard resilience and the Disaster Cycle (see Figure 1). Several participants noted that the major gap in enhancing the resilience of coastal communities is translating science and information so it can be used by coastal decision makers to promote long term recovery after a major event, which, in turn, promotes effective multi-hazard mitigation in preparation for the next disaster event. Participants stated that NOAA has a critical role in this arena because of the agency's roles in science, observations and data collection, coastal resource management, community outreach and capacity building. No other federal agency is currently focusing its efforts on long-term recovery. FEMA, for example, primarily targets preparedness, immediate response after an event and, to a small extent, mitigation.

Figure 1: The Disaster Cycle



Stakeholders thought NOAA should lead the discussion nationally about resilience and try to bring federal, state and local decision makers and stakeholders together. Additionally, participants indicated that NOAA should be developing more relevant products to address the impacts of climate change and monitor sea level rise to help decision makers plan for changing trends and patterns as well as actively engage the public in designing and implementing community-based planning and research. They pointed to the need for better communication of risk and vulnerability information when making land use decisions, in order to reduce potential economic loss from a hazardous event and protect sensitive coastal habitats, and for techniques and best practices to minimize structural damage from coastal storms. They also sought easier access to NOAA data, and pushed for NOAA leadership on integration of mapping and observations with other federal, state and local providers.

Lastly, the importance of strengthening NOAA's information for U.S. marine transportation was emphasized by stakeholders, with a clear link drawn between NOAA's physical observations collected for marine transportation (including hydrography and shoreline mapping, elevations, water levels and marine weather data) and the strong reliance on those same observations for homeland security, short term warnings and hazards response, as well as sea level rise monitoring, storm surge modeling, floodplain mapping, and a host of other community resilience hazard applications. This recognition of the multi-purpose nature of NOAA's Navigation Services data is echoed in the March 2007 Hydrographic Services Review Panel (HSRP) report, which details the broader applications of the data to such non-navigation uses as coastal zone management, emergency response, wetlands

restoration, land-use project management, and climate change and sea-level trend analyses. The report highlights how NOAA's Marine Transportation System and geodetic information also serve as the baseline observations for monitoring the health, status, and changes in coastal communities, and helps to protect lives, save property, restore the environment, and maintain the economic vitality of the nation.

Ecosystems Theme

Overall, NOAA stakeholders voiced the need for greater integrated and dynamic management by NOAA. Stakeholders asked that NOAA conduct integrated ecosystem assessments (IEAs) that include decision support systems, visualization and analysis tools, and data sharing among partners. In particular, stakeholders wanted to see the integration of coastal science management with living marine resource management, and more integration of data management, research actions (e.g., coordinating offshore and near shore surveys), and science and management knowledge within NOAA as well as with external entities. They asked that NOAA aim to balance and integrate all the pieces of the ecosystem through an ecosystem approach, with more emphasis on the land-water interface, and better integrate industry data into assessments.

NOAA stakeholders asked for collaboration on many levels. They wanted to see the collaboration of data use and management across local/state/federal government agencies, as well as NGOs, businesses, academic institutions, and coastal residents. Some stakeholders asked that NOAA partner with local organizations on baseline studies and integrating data to answer locally defined issues/initiatives. They also voiced that NOAA should partner with entities in coastal states in collecting and analyzing data; collaborate internationally and share lessons learned; join the Millennium Assessment (led by the World Resources Institute and in partnership with the UN and others); work with other agencies to link the variety of defined regions for management; include partners in data analysis and allow them to participate in decision-making; and foster collaboration while respecting ownership of data.

Many stakeholders urged NOAA to provide greater access to its data by using new technologies/web-based solutions to share results, foster communication, and collaborate. Equally accentuated was that NOAA should get information out in a timely and user-friendly manner. Many suggested that NOAA provide stakeholders with a web-based NOAA repository for raw data, synthesized data (at different levels of synthesis for various user needs), as well as information about NOAA research, best practices, management tools, accomplishments, and abilities. Stakeholders also requested access to dynamic, web-based IEAs.

A number of stakeholders asked that NOAA serve as a nexus for the marine research of other agencies, NGOs, and academics. They suggested the establishment of a NOAA-rooted search engine that searches across other agencies and organizations in the US and abroad for research information – a tool that could also help promote smarter collaborations. Some suggested the search engine have the option of being geospatially based. Finally, a few stakeholders suggested the use of Internet2, a networking consortium, to communicate with universities and disseminate information.

Stakeholders wanted NOAA to aim for more balanced assessments of ecosystems that include a variety of ecosystem components, and that focus on identifying, maximizing, and putting a value on ecosystem services. Stakeholders asked for an increased amount of

fishery independent data (in real-time when possible), observers, and vessel monitoring systems to expand the scope of observations.

Stakeholders asked that NOAA develop and/or provide more information on ecosystem thresholds and projected impact levels to help them manage more effectively; management tools that work effectively with uncertainty; a data management system to preserve old baseline data; a long-term biological time-series data set in association with other ocean observing systems; and coastal and marine models that include landscape ecology linking marine and terrestrial habitats.

Overall, stakeholders asked for more data and greater quantification of data. Stakeholders specifically noted the need for greater habitat mapping; strong, science-based stock assessments; more non-fish living marine resource data; an increase in the spatial and temporal resolution of surveys of living marine resources; global climate change impact monitoring; a focus on the Integrated Ocean Observing System (IOOS); and assessments of deep sea corals, sea turtle populations, and undisturbed systems. Lastly, some stakeholders suggested that NOAA create a cross-agency geographical information system (GIS) to better understand human activities in the coastal zone.

In support of the ecosystem approach to management, many stakeholders felt that NOAA needs to expand its realm to link land management to marine management for a fuller ecosystem view. This would include extending NOAA influence to the headwaters of streams used by anadromous fish.

Stakeholders want NOAA to adopt a user-driven (client/customer-oriented) management approach for conservation research. Stakeholders supported NOAA's continuing development of the regional approach, and also emphasize that NOAA should create comprehensive networks of marine reserves, or bioreserves, and utilize them for research, monitoring, and understanding of human impacts.

Follow-up Activities

NOAA has collected and consolidated the feedback provided by stakeholders at the forum and is now in the process of translating this data to inform its strategic planning activities. Comments captured at the forum will ultimately be entered into an electronic database that PPI uses to track factors that affect demand for NOAA programs. The database provides a platform for NOAA to connect feedback from many different sectors and increases the agency's ability to incorporate stakeholder views in strategic planning. PPI will analyze stakeholder input to identify factors that are changing demand for NOAA products and services and assess the external level of concern about these factors. NOAA can use this information to better assess and prioritize its existing capabilities and make informed choices for future activities.